

NEW RECORDS OF MAYFLIES (EPHEMEROPTERA) FROM MAINE

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ABSTRACT: Five species of mayflies (Ephemeroptera) are reported from Maine for the first time: *Ameletus lineatus*, *Acerpenna macdunnoughi*, *Acentrella ampla*, *Centroptilum bellum*, and *Leucrocuta aphrodite*. The occurrence of the primarily southern species *Acentrella ampla* in central and coastal Maine represents the northernmost record for the species.

Maine is a large geographically diverse area for which the mayfly fauna is poorly understood. A current review of the historical records for Maine indicate that only about 100 species were reported (Burian 1990). This number represents only half the species expected to occur in the region based on continental distribution records (Edmunds *et al.* 1976).

To improve our knowledge of the diversity and distribution of mayflies in Maine an extensive survey was conducted from 1985-87. In addition to inland sampling (Burian 1990), the offshore islands of Mount Desert and Isle au Haut were intensively sampled (Mack 1988). These sampling programs produced several thousand new specimens for study. The purpose of this paper is to report the occurrence of five species (*Ameletus lineatus* Traver, *Acerpenna macdunnoughi* (Ide), *Acentrella ampla* (Traver), *Centroptilus bellum* (McDunnough), and *Leucrocuta aphrodite* (McDonnough)) for the first time from Maine.

Abbreviations for life stages, locations, and collectors used in species records are: nymph (N), adult (A), males (M), females (F), at (@), Mount Desert Island (MDI), Acadia National Park (ANP), S.K. Burian (SKB), K.E. Gibbs (KEG), and R.G. Mack (RGM). Distribution records are listed separately for nymphs and adults. Records are arranged by county, and habitat information for sites listed is provided by Mack (1988) for Mount Desert Island and Burian (1990) for inland areas. Specimens listed in this paper were deposited in the Aquatic Insect Collection of the Department of Entomology, University of Maine, Orono, Maine, U.S.A.

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Siphonuridae

Ameletus lineatus Traver

(N) FRANKLIN: 3rd small brook crossing golf course road, Sugarloaf Ski Area 23-V-85 SKB; HANCOCK: Duck Brk. @ Rt. 233 MDI-ANP 2-V-87 RGM; Great Brk. 1 km south of outlet to Great Long Pond MDI-ANP 19-V-87 RGM; Stanley Brk. along Park Loop Rd. MDI-ANP 19-V-87 RGM.

(A) HANCOCK: Stanley Brk. along Park Loop Rd. MDI-ANP 19-V-87 (F) & 23-V-87 (F) RGM.

In addition to the records noted here for the Moosehead Plateau and costal Maine, early instar nymphs that are either *Ameletus ludens* or *A. lineatus* were collected from Washington County. Mature nymphs or adults are necessary to clarify these additional records.

Baetidae

Acerpenna macdunnoughi (Ide)

(N) FRANKLIN: Carrabassett R. east of rest area @ Rt. 16 22-V-86 SKB; Carrabassett R. @ confluence with West Branch Carrabassett R., Kingfield 20-VI-86 SKB; HANCOCK: Breakneck Brk. ANP boundary, Hulls Cove, MDI 31-III-86 SKB; Duck Brk. outlet of Eagle Lake @ Rt. 223 MDI-ANP 8-V-86 SKB; Duck Brk. @ Rt. 3 MDI-ANP 2-V-87 RGM; Lurvey Brk. @ Seal Cove Rd. MDI-ANP 13-VII-87 RGM; Great Brk. 100 m south of the mouth of brook MDI-ANP 19-V-87 RGM; Brook (unidentified) entering Aunt Betty Pond on east side of carriage path MDI-ANP 25-V-87 RGM; Stanley Brk. along Park Loop Rd. MDI-ANP 7 & 18-V-87 & 6-VI-87 RGM; PENOBSCOT: Sunkhaze Str. @ Studmill Rd. bridge, Costigan 9-VI-86, 3-VII-86, & 5-VIII-86 SKB; Baker Brk. upstream & downstream of culvert on County Rd., Milford 27-VI-86 SKB; Birch Str. upstream & downstream of bridge on County Rd., Milford 19-V-86, 4 & 5-VIII-86 SKB; PISCATAQUIS: Lazy Tom Str. @ spillway bridge on Spencer Bay Rd. 24-VI-86, 28-V-86, 25-VI-86, & 29-VII-86 SKB; Lily Bay Brk. above confluence with North and South Brooks 26-VIII-86 SKB; Tussel Brk. above inlet to Moosehead Lake 29-V-86; WALDO: Small stream @ intersection of Back Rd. & North Palermo Rd., Palermo 14-IV-86 SKB; WASHINGTON: Flood Brk. downstream of culvert @ Rt. 64-VI-86 & 12-VIII-86 SKB; Small brook @ rest area on East Musquash Lake, upstream of culvert 5-VI-86 SKB; Tomah Str. upstream & downstream of bridge @ Rt. 6 13-VIII-86 SKB.

(A) FRANKLIN: Small tributary (unnamed) to Carrabassett R. at base of Sugarloaf Mtn. 27-VI-86 (M) SKB; PENOBSCOT: Sunkhaze Str. @ Studmill Rd. bridge, Costigan 11-V-86 (F) SKB; PISCATAQUIS: Lazy Tom Str. @ spillway bridge on Spencer Bay Rd. 26-VIII-86 (F) SKB; Lagoon Brk. upstream & downstream of culverts on road to Big Lyford Pond 29-V-86 (M,F) SKB; Lily Bay Brk. confluence with Moosehead Lake 26-VIII-86 SKB.

This species is widely distributed across the state and is one of the most frequently encountered baetids in cool rocky streams.

Acentrella ampla (Traver)

(N) HANCOCK: Duck Brk. @ bridge off of New Eagle Lake Rd. MDI-ANP 11-V-86 KEG & 9-V-87 RGM; Stanley Brk. MDI-ANP 6-IX-87 RGM; PENOBSCOT: Souadabscook Str. @ Rt. 9 29-IV-86 KEG; WASHINGTON: Small brook @ rest area on East Musquash Lake @ Rt. 6 5-VI-86 SKB.

(A) HANCOCK: Duck Brk. @ bridge off of New Eagle Lake Rd. MDI-ANP 19-V-87 (M,F) RGM.

Primarily a southeastern species, *Acentrella ampla* is restricted to the coastal and central southern interior parts of Maine. The species was most abundant at Duck Brk. on Mount Desert Island where it occurred in dense *Fontinalis* mats in swift rock-bottom streams.

Centroptilum bellum McDunnough

(N) FRANKLIN: Reed Brk. above confluence with Carrabassett R. @ Rt. 16 west of Kingfield 21-VIII-86; HANCOCK: Breakneck Brk. @ ANP boundary Hulls Cove, MDI 10-VI-86 SKB; Breakneck Brk. @ Rt. 3 MDI-ANP 13-VI-87 RGM; PENOBSCOT: Sunkhaze Str. @ Studmill Rd. bridge, Costigan 9-VI-86, 3-VII-86, & 5-VIII-86 SKB; Birch Str. upstream & downstream of bridge on County Rd., Milford 9-VI-86 & 19-VI-86 SKB; Baker Brk. upstream & downstream of culvert on County Rd., Milford 4-VIII-86 SKB; SOMERSET: Carrabassett R. 2.4 km west of North Anson along Rt. 16 21-VI-86 & 13-VII-86 SKB; WASHINGTON: Tomash Str. upstream & downstream of bridge @ Rt. 6 1-VIII-86 SKB.

(A) FRANKLIN: Reed Brk. above confluence with Carrabassett R. @ Rt. 16 12-VIII-86 (M,F) SKB; WASHINGTON: Tomah Str. @ bridge on Rt. 6 1-VII-86 SKB.

This species is broadly distributed across the state and frequently occurs in cool rocky streams and rivers.

Heptageniidae

Leucrocuta aphrodite (McDunnough)

(N) LINCOLN: Sheepscot R. (mainstem) Rt. 126 North Whitefield 15-VIII-86 SKB.

(A) HANCOCK: Duck Brk. @ Rt. 3 MDI-ANP 11-VII-87 (M) RGM; PENOBSCOT: Sunkhaze Str. @ Studmill Rd. bridge 5-VIII-86 (M) SKB; Birch Str. @ confluence with Stillwater R. @ Rt. 116 bridge 12-VI-86 (M,F) SKB; Lights @ Mobil Gas Station @ Stillwater Ave. exit of I-95 7-VII-86 (M,F) SKB; Lights @ Mainway Store, Old Town 16-VII-86 (M,F) SKB; Lights behind Nutting Hall, University of Maine campus, Orono 11 & 30-VI-86 & 4-VIII-86 (M,F) SKB.

Broadly distributed across eastern Canada (Edmunds *et al.* 1976), *Leucrocuta aphrodite* is restricted in Maine to the central and southern interior areas. The species probably dispersed into Maine from the south and west (Burian 1990), and it is expected that additional collections made in the southwestern parts of the state will uncover other populations.

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LITERATURE CITED

- Burian, S.K. 1990. The Mayflies (Ephemeroptera) of Maine: A Faunal Survey, Part 1 and Taxonomy of the Leptophlebiidae, Potamanthidae, Polymitarcyidae, and Ephemeridae, Part 2. Ph.D. Dissertation, University of Maine, Orono, ME, U.S.A. 409 pp.
- Edmunds, G.F., Jr., S.L. Jensen, and L. Berner 1976. The Mayflies of North and Central America. University of Minnesota Press, Minneapolis, MN. 330 pp.
- Mack, R.G. 1988. Faunal Survey and Observed Biology of the Mayflies of Acadia National Park. M.S. Thesis, University of Maine, Orono, ME, U.S.A. 102 pp.